

ABSTRACT

A solid acid catalyst represented by $\text{HTi}_x\text{Nb}_y\text{O}_5$ wherein x is $1.1 < x < 1.2$ and y is $0.9 > y > 0.8$, having a Ti/Nb atomic ratio z of $1 < z < 1.5$, and has been produced by subjecting a cation exchangeable lamellar metal oxide composed of polyanion nano-sheets comprising lamellar metal oxide layers of titanium niobate being arranged regularly while sandwiching an alkali metal cation between them to the proton exchange of the alkali metal cation by the use of an inorganic acid or an organic acid prepared into a 0.0001M to 1M solution, and then inserting a cation selected from the group consisting of an organic amine and an organic ammonium between the resulting proton exchanged layers, to thereby delaminate the laminated layers temporarily and prepare an aqueous colloidal solution comprising metal oxide sheets having the organic amine or organic ammonium adsorbed thereon, and then adding an inorganic acid or an organic acid prepared into a 0.0001M to 1M solution to the colloidal solution, to thereby exchange the organic amine or organic ammonium with a proton and simultaneously coagulate the resulting products onto the titanium niobate nano-sheet.